WASHINGTON STATE DEPARTMENT OF ECOLOGY

Focus

Universal Waste Rule for Dangerous Waste Lamps WAC 173-303-573

Background

The Universal Waste Rule (UWR) establishes alternative, streamlined waste management standards in place of most of the Dangerous Waste Regulations, Chapter 173-303 WAC, except for, WAC 173-303-050, 173-303-145 and 173-303-960. Universal wastes are certain dangerous wastes that are frequently generated, and that are able to be managed appropriately under less stringent regulatory requirements. The Universal Waste Rule for batteries and mercury-containing thermostats has been in place in Washington State since 1998. For more information on the original UWR, refer to Ecology publication number 98-407 (Revised).

In June 2000, Ecology added lamps that are dangerous waste to the UWR. This rule replaces the "Interim Policy on Waste Management of Spent Fluorescent Light Tubes," dated January 30, 1995.

Universal Waste Categories of Lamps

The types of lamps that may be universal waste include:

- Fluorescent tubes
- High density (HID) lamps (mercury vapor, metal halide, high pressure sodium)
- Compact fluorescent
- Neon lamps[1]
- Any other lamps that are dangerous waste

[1] *"Neon" lamp manufacturers do not always use the inert gas neon, some are manufactured using mercury and phosphor powder.*

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Why Do We Care About Lamps?

Nationally, about 600 million lamps are disposed of annually, most to solid waste disposal facilities, including landfills and solid waste incinerators. In fluorescent lamps, mercury is the main concern and is present in lamps primarily in vapor form.

- The average mercury content in a fluorescent tube manufactured in 1999 is approximately 12 milligrams.
- Pre-1999 manufactured fluorescent tubes can have from 15 to 50 milligrams.
- High intensity discharge lamps may contain up to 250 milligrams, depending on the lamp wattage.

During solid waste handling and disposal many lamps break releasing mercury vapor and potentially exposing solid waste handlers to inhalation of those vapors. Solid waste incineration of mercury containing lamps also releases the mercury into the atmosphere. Mercury in the atmosphere is eventually deposited back to the earth.

Health & Environmental Hazards of Mercury

- Health risk from inhalation or absorption
- Causes neurological disorders
- Persistent, bioaccumulative and toxic
- Major cause of contaminated fish advisories

Some lamps may also contain lead in the glass and lead solder used in the lamp base. Lead is a toxic metal that may leach from solid waste landfills into the ground water. Manufacturers are eliminating the lead by using nonleaded glass and solders in newer lamps.

How to Know if a Lamp is Dangerous Waste

Lamps are known to designate as dangerous waste because of their mercury and/or lead content. Lamps may be assumed to be dangerous waste, they may be "book designated" using manufacturers' information, or they may be designated through sampling and testing.

Certain "green" lamps are available that contain less mercury and do not designate as dangerous waste. Ask your lamp manufacturer for data sheets to use when making waste determinations for these lamps. Check with your local health department, solid waste agency, or landfill for recycling or disposal options.

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Should Fluorescent Lamps Still be Used?

YES! Fluorescent tubes use one-quarter of the energy used by incandescent lamps for the same amount of light and last as much as ten times longer than incandescent bulbs. Compact fluorescent lamps last far longer than conventional tubes. The lamps used for lighting streets, playfields, and parking lots should also be selected for energy conservation. Energy conservation reduces mercury emissions from fossil fuel burning power plants. Using less electricity – which we can do by using energy-saving lighting – is the best protection for health and the environment.

Who is Affected by the UWR for Lamps?

- Regulated generators of dangerous waste (Medium Quantity and Large Quantity Generators)
- Businesses that generate or accumulate dangerous waste lamps in regulatedquantities (this category may include commercial building/property owners that maintain the lighting for tenants)
- Businesses that provide collection and management services (e.g., lighting contractors)

Regulated generators of dangerous waste generate over 220 pounds of total dangerous waste per month or batch (or 2.2 pounds of extremely hazardous waste), or accumulate greater than 2,200 pound of dangerous waste (or 2.2 pounds of extremely hazardous waste) at any time. As a point of reference, four (4), four-foot long, linear fluorescent tubes equal approximately 2.2 pounds. It would take about 400 of those tubes to equal 220 pounds and approximately 4,000 of those tubes to equal 2,200 pounds.

NOTE: *Small Quantity Generators (SQGs) are exempt from the UWR (they are subject to WAC 173-303-070(8)) and can manage dangerous waste lamps as SQG dangerous waste. Households are also exempt from the rule. Local governments and/or landfills, however, may restrict disposal by SQGs and households. (If a SQG generates dangerous waste lamps in quantities that would put them into a higher generator category, they should choose to manage those lamps as universal waste to retain their SQG status.*

Under the UWR, there are small quantity handlers, large quantity handlers, transporters and destination facilities.

- Handlers are the generators of the universal waste or businesses that receive and collect universal waste before shipping to another handler or to a destination facility.
- Transporters transport the lamps between handlers, or to a destination facility.
- Destination facilities recycle the lamps, or provide treatment, storage and disposal to a dangerous waste landfill.

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NOTE: *Businesses that generate and manage dangerous wastes and universal wastes are considered both a dangerous waste generator, and a universal waste handler.*

Significant Benefits

Benefits for managing dangerous waste lamps as universal waste include:

- Waste is not counted toward waste generation totals to determine generator status.
- Waste is not reported on the Dangerous Waste Annual Report.
- Waste does not need to be manifested when sent off-site.
- Accumulation time limit for universal waste is increased to one year.

What is the Difference Between the 1998 UWR and the UWR with Lamps?

There is one significant difference regarding when a lamp handler becomes a large quantity handler, subject to more requirements:

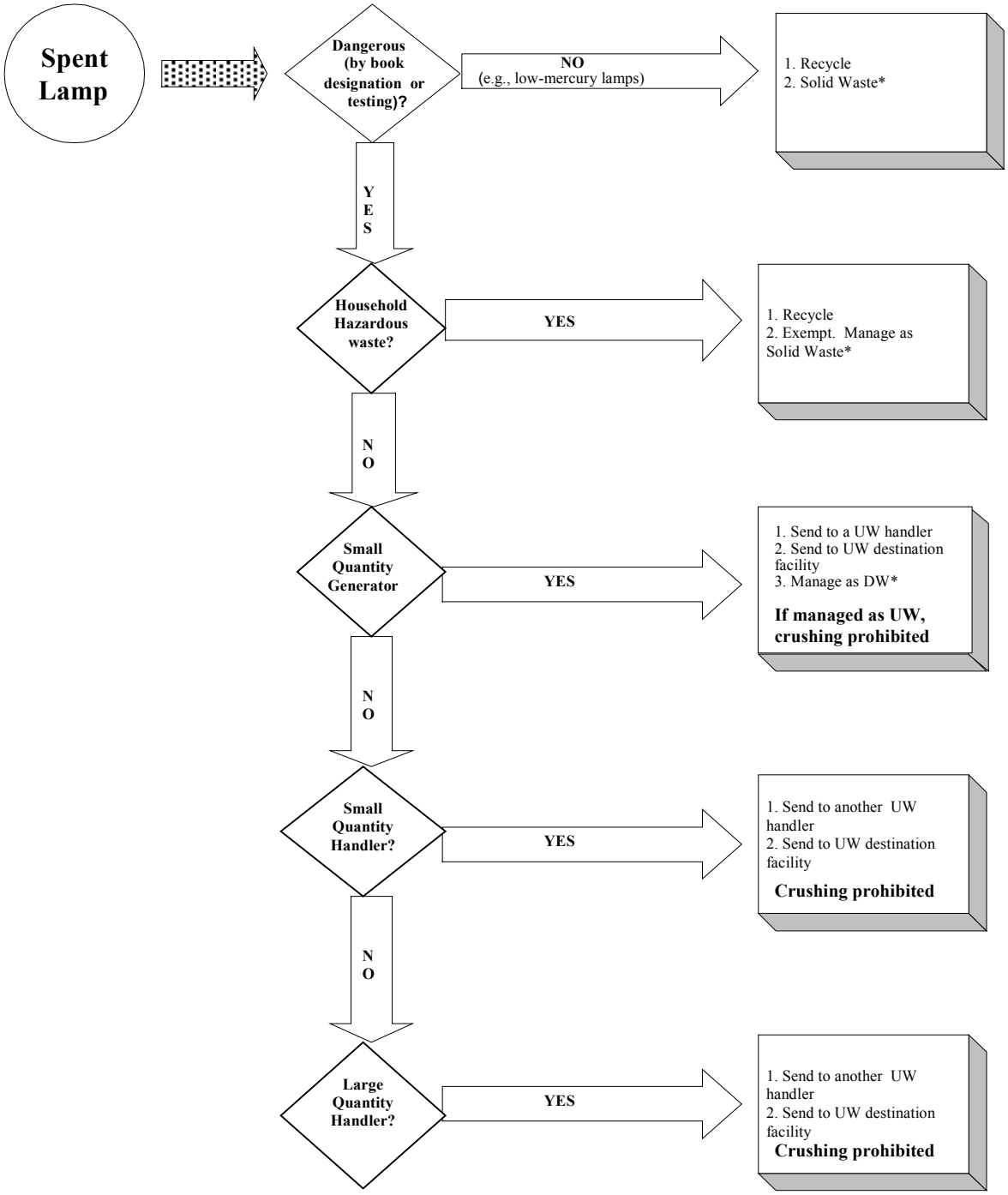
Handler Type	Pre-2000 Rule	New Rule with Lamps
Small Quantity Handler	Accumulate less than 11,000 pounds of Universal Waste	Accumulate less than 2,200 pounds of lamps, or less than 11,000 pounds of total universal waste, including lamps.
Large Quantity Handler	Accumulate 11,000 or more pounds of Universal Waste	Accumulate 2,200 or more pounds of dangerous waste lamps or 11,000 pounds of total universal waste (including lamps)

Is On-Site Lamp Crushing to Reduce Volume Allowed?

Universal waste lamp handlers and transporters cannot dispose of or treat universal waste lamps. **This prohibition on treatment includes lamp crushing**. Lamp crushing is considered a treatment-by-generator activity, subject to full regulation under the *Dangerous Waste Regulations.* Crushed lamps must be managed as dangerous waste unless they are shown to be non-dangerous through the designation process.

Attachment 1

GENERATOR MANAGEMENT OPTIONS FOR WASTE LAMPS



*Check with local health department, solid waste agency or solid waste landfill operator

Attachment 2
UNIVERSAL WASTE LAMP MANAGEMENT REQUIREMENTS

NOTE: Small Quantity Generators (SQGs) are exempt from the UWR (they are subject only to WAC 173-303-070 (8)) and can manage dangerous waste lamps as SQG dangerous waste. Households are also exempt from the rule. Local governments and/or landfills, however, may restrict disposal by SQGs and households. (If a SQG generates dangerous waste lamps in quantities that would put them into a higher generator category, then they should choose to manage those lamps as universal waste to retain their SQG status.)

REQUIREMENTS	SMALL QUANTITY HANDLER	LARGE QUANTITY HANDLER	UW TRANSPORTER	UW DESTINATION FACILITY
Notification and EPA I.D.#	Not required	YES	Not required	**YES**
Immediately contain by placing in a container any lamps showing evidence of leakage, damage, etc.	YES	YES	YES	Regulated as a TSD or 24 hour recycler (WAC 173-303-140; 173-303-141; 173-303-280 through 173-303-525; 173-303-600 through –173-303-695; 173-303-800 through 173-303-840. OR, If a 24 hour recycler, WAC 173-303-120 (4)(c)
Containerize in closed, structurally sound, compatible containers	YES	YES	YES	
Cardboard/fiber containers may be used (inside storage only)	YES	YES		
Container label required: "Waste Lamps", or "Universal Waste Lamps"	YES	YES		
Track length of time since waste lamp generation. Acceptable methods of proof: date on label, inventory system, etc.	YES	YES		
Response to Releases - Contain releases; determine if DW; if so, manage as specified in Chapter 173-303, WAC	YES	YES	YES	
Prohibited from disposing of Universal Waste	YES	YES	YES	
Treatment (includes crushing) prohibited	YES	YES	YES	
Accumulation Time Limit	One year (longer if proved necessary for proper management)	One year (longer if proved necessary for proper management)	10 days or less at UW transfer facility, otherwise becomes UW handler	
Employee Training	Inform appropriate employees of proper handling and emergency procedures	Ensure appropriate employees are thoroughly familiar with proper handling and emergency procedures	Not required under rule, but recommended	
Tracking of Waste Shipments	Recommended, but not required	Keep records (invoice, manifest, etc.) for 3 years of all shipments received and all shipments sent off-site	If UW is hazardous material under 49CFR171.8, describe in shipping papers per 49CFR Part 172	Keep records (invoice, manifest, etc.)for 3 years of all shipments received
Exporting	EPA Acknowledgment of Consent form from receiving country	EPA Acknowledgment of Consent form from receiving country	EPA Acknowledgment of Consent form must accompany shipment	EPA Acknowledgment of Consent form must accompany shipment
If UW is hazardous material under 49CFR171.8, follow applicable Dept. of Transportation regulations in 49CFR Part 171-180	If self-transporting, defined as a Universal Waste Transporter	If self-transporting, defined as a Universal Waste Transporter	**YES**	If self-transporting, defined as a Universal Waste Transporter

Attachment 3
FREQUENTLY ASKED QUESTIONS ABOUT UNIVERSAL WASTE LAMPS

Q What types of lamps are included in the UW rule?

A The rule includes, but is not limited to, fluorescent tubes, compact fluorescent, mercury vapor, metal halide, high-pressure sodium and neon lamps. The rule targets those lamps that are frequently used by businesses, institutions, government and utilities, and that are known to have hazardous properties that may cause them to be a dangerous waste, such as mercury and lead. Other types of lamps, such as incandescent, may also have hazardous properties, such as lead in the lamp base, that can cause them to be dangerous waste and as such could be managed as universal waste.

Q What is the difference between a generator and a handler under the UW rule?

A Under the universal waste rule a generator of universal waste is also considered a handler. A handler can be the generator of the lamp, or a business that receives, collects and then sends lamps on to another handler, or to a destination facility.

Q What does the UW rule mean for regulated generators of dangerous waste (medium quantity and large quantity generators)?

A Regulated generators of dangerous waste that also generate dangerous waste lamps should begin managing those lamps as universal waste. The benefits of managing the lamps as universal waste include no counting, no manifesting, no reporting on annual reports, and a longer accumulation time. The January 1995 policy on fluorescent tubes is being replaced by the universal waste rule, so regulated generators no longer have the option of sending their dangerous waste fluorescent tubes to a Municipal Solid Waste landfill.

Q A business doesn't generate any other dangerous waste, but they do have a lot of fluorescent lamps that get changed out – how does the UW rule affect them?

A The affect of the rule on the business depends on a few things. The first is whether or not the lamps are dangerous waste. If the lamps are dangerous waste, then the number of lamps generated and the local regulations for business lamp disposal will affect that business. For such a business, the quantity of dangerous waste lamps generated is going to determine their regulatory status. If the business generates more than 220 pounds of lamps at one time or during one month or accumulates more than 2,200 pounds of lamps at any time, then they would become a regulated dangerous waste generator unless they manage the lamps under the universal waste rule. If the business generates less than 220 pounds of dangerous waste lamps, then they would be considered a small quantity generator (SQG) and subject to the less stringent small quantity generator regulations found at WAC 173-303-070(8). They could choose to manage the lamps as universal waste, or choose to manage the lamps as SQG dangerous waste. The business should check with their local health department, solid waste agency or landfill operator for requirements.

Q A business is currently a small quantity generator (SQG) of dangerous waste, how does the UW rule affect them?

A A business that generates dangerous waste at the small quantity generator level may be affected by the rule. If, in addition to other dangerous wastes they generate, they generate or accumulate dangerous waste lamps in quantities that may push them over the SQG quantity exclusion limits, then they should manage those lamps as universal waste to retain their SQG status. If a business generates dangerous wastes, including dangerous waste lamps, under the SQG

quantity exclusion limits, then they may manage the lamps as SQG dangerous waste. The business should check with their local health department, solid waste agency or landfill operator for requirements.

Q Are manufacturers making lamps that are non-dangerous waste?

A The major lamp manufacturers are producing lamps that pass both the federal Toxicity Characteristic Leaching Procedure (TCLP) test and Ecology's static acute fish toxicity test for state criteria. Check with the lamp manufacturer, your local lamp distributor, or lighting contractor for more information on specific lamp models.

Q Can those non-dangerous waste lamps be managed as solid waste or do they need to be managed as universal waste?

A The universal waste rule only requires that dangerous waste lamps be managed as universal waste. Lamp models that have been shown to be non-dangerous waste would be eligible for disposal to a Municipal Solid Waste landfill, subject to local regulations and landfill operator approval. Of course, the non-dangerous waste lamps still have recyclable components, including glass and the aluminum end caps and metal bases. Additionally, these types of "green" lamps still contain mercury, and pass the TCLP not simply because of the lower mercury content, but because there are other unique lamp components or additives that aid in binding up the mercury so that it doesn't leach during the TCLP test. The manufacturers have all stated that removal of the unique components or additives will generally cause these lamps to fail the TCLP. As always, Ecology recommends recycling over disposal.

Q Will on-site lamp crushing to reduce volume space be allowed under the UW rule?

A No, Ecology did not include an on-site lamp crushing management option in the final universal waste rule. During the rule development, it was determined that the as-proposed performance-based lamp crushing standards were not enough to ensure that uncontrolled releases of mercury and other hazardous constituents would not occur from the use of lamp crushing units currently on the market. Because of this, Ecology could not ensure that handlers would be crushing lamps properly and in a way that did not release mercury or other hazardous constituents into the environment. To address this issue, Ecology would need to add layers of complexity to the universal waste rule in explaining such requirements as engineering controls and maintenance schedules. Adding more complex language and requirements would conflict with the purpose of the universal waste management system.

Q What happens if a universal waste lamp handler mismanages universal wastes?

A The universal waste rule is a subset of the full dangerous waste regulations, and a handler that mismanages universal waste is subject to enforcement. A handler that receives universal waste from others and mismanages the waste would be held liable for the actual regulatory violation, but the other handlers would also be responsible for that mismanagement under our state cleanup law, the Model Toxics Control Act. Since universal wastes are still dangerous wastes, persons remain liable under dangerous waste and cleanup regulations for remediation of any releases from universal waste management.

Q Can a handler of universal waste lamps self-transport universal wastes to another handler or destination facility?

A Yes, that handler may self-transport, but in doing so, must meet the UW transporter requirements.

Q **Is a Hazardous Waste Manifest needed if a UW lamp handler chooses to send their UW lamps to a destination facility located in a state that hasn't adopted the universal waste rule for lamps?**

A If those lamps are considered hazardous waste in the state the destination facility is located, then a Hazardous Waste Manifest would be required by the receiving state. Additionally, interstate transport of UW lamps may take the lamps through states that have not adopted the universal waste rule for lamps. Those states that have not adopted the universal waste rule for lamps may require a Hazardous Waste Manifest for the portion of the trip those lamps are in their state. Check with the destination facility and/or the states the lamps will travel through to be sure of the requirements.

Q **Can I be a generator <u>and</u> a handler?**

A Yes, a business that generates dangerous waste, (for example, a flammable solvent) <u>and</u> that generates and manages their universal waste would be considered both a dangerous waste generator and a universal waste handler. A handler of universal waste could also become a generator of dangerous waste. For example, a universal waste handler of lamps may have some lamps break, releasing mercury. The residue from the spill would most likely designate as a dangerous waste and would need managed as such. Residues from such spills could not continue to be managed as universal waste.

Attachment 4

SERVICES DIRECTORY FOR LAMPS AND BALLASTS

The Department of Ecology does not assume any liability for the accuracy or completeness of this information. A listing of a firm in this directory does not constitute a recommendation.

Name of Company	City	State	Phone	E-Mail Address	SERVICE
Able Clean-Up Technologies	Spokane	WA	(509) 466-5255	ksilverh2o@email.msn.com	Transportation of lamps and ballasts
Advanced Environmental Solutions	Seattle	WA	(206) 652-2323	justin@advenvironmental.com	Equipment & containers
Big Sky Industrial	Spokane	WA	(509) 624-4949	bigsky@iea.com	Arrange for ballast disposal
Creative Environmental Technologies	Tacoma	WA	(888) 627-3347, (253) 627-3347	ceti@cetinw.com	Arrange for lamp and ballast transportation
Earth Protection Services	Lake Oswego	OR	(503) 620-2466 (800) 588-7190	earthpro@cyberhighway.net	Lamp recycling and ballast management
Eastern Environmental Technologies	Port Chester	NY	(800) 808-PCBS	eet@erols.com	Lamp recycling and ballast management
Eco Lights NW	Seattle	WA	(206) 343-1247	amyf@totalreclaim.com	Full service lamp recycler and ballast management
Envirotech Systems	Seattle	WA	(800) 922-9395	envsys1@aol.com	Arrange for lamp recycling and ballast disposal
Evergreen Environmental	Aberdeen	WA	(360) 533-6141	LarryM@olynet.com	Arrange for ballast disposal
FBN Enterprises	Kirkland	WA	(425) 820-8115		Arrange for lamp and ballast reycling or disposal
Foss Environmental Services	Seattle	WA	(206) 768-1426	seattleinfo@foss.com	Transportation of lamps and ballasts
Lighting Resources	Phoenix	AZ	(800) 572-9253	ben@voidnet.com	Lamp recycling and ballast management
MCS Environmental	Spokane	WA	(509) 924-9236	mcsspok@ez.eznet	Arrange for lamp and ballast recycling or disposal
Mercury Technologies of Minnesota	Pine City	MN	(800) 864-3821	merctech@ecenet.com	Lamp recycling and ballast management
Midwest Recycling & Recovery Services	Dubuque	IA	(800) 311-9636		Arrange for lamp and ballast recycling or disposal
NSSI Recovery Services	Houston	TX	(713) 641-0391	rdgallagher@nssihouston.com	Limited lamp and ballast disposal services
Nu-Life Industries	Aldergrove	BC	(604) 857-5588	info@nulife-ind.com	Lamp recycling and non-PCB ballast management
Onyx Environmental Services, LLC	Tukwila	WA	(206) 241-3900 or (800) 334-2387	jim_beck@wastemanagement.com	Transportation of lamps and ballasts

Name of Company	City	State	Phone	E-Mail Address	SERVICE
Philip Services	Renton	WA	(425) 227-0311 or (800) 228-7872	londamay@philip-serv.com	Transportation of lamps and ballasts
Philip Services	Washougal	WA	(800) 547-2436	londamay@philip-serv.com	Transportation of lamps and ballasts
Phoenix Environmental	Fife	WA	(253) 779-8474		Limited t\ansportation of lamps and ballasts
Prezant Associates	Seattle	WA	(206) 368-4252 or (206) 281-8858	prezant@prezant.com	Industrial hygiene, safety and health consulting
Recyclights West LLC	Glendora Las Vegas	CA NV	(626) 335-3042 (702) 633-7900	recwest@aol.com	Lamp recycling at Las Vegas facility – no ballast management
Romic Environmental	Tacoma	WA	(253) 229-6569	gregc@romic.com	Transportation of lamps and ballasts to CA facility
RTW	University Place	WA	(253) 566-5819	mthinc@foxinternet.net	Arrange for lamp and ballast recycling or disposal
Safety Kleen, Auburn	Auburn	WA	(206) 939-2022		Transportation of lamps and ballasts
Safety Kleen, Lynnwood	Lynnwood	WA	(425) 775-7030		Transportation of lamps and ballasts
Safety Kleen, Pasco	Pasco	WA	(509) 547-8771	mikekendall@safetykleen.com	Transportation of lamps and ballasts
Safety Kleen, Spokane	Spokane	WA	(509) 928-8353	DavidBlackham@safetykleen.com	Transportation of lamps and ballasts
Superior Special Services (formerly Salesco Systems)	Phoenix	AZ	(800) 368-9095	mdezelon@ssusa.com	Lamp recycling and ballast management
Van Waters & Rogers, Kent	Kent	WA	(800) 909-4897	kraen.troutman@dwr-inc.com	Arrange for lamp recycling and ballast management
Van Waters & Rogers, Spokane	Spokane	WA	(800) 909-4897	ietxp@vwr-inc.com	Arrange for lamp recycling and ballast management
WasteXpress	Portland	OR	(503) 224-3206	wastex@easystreet.com	Transportation of lamps and ballasts